Wisconsin
Department of Commerce

Approval # 980068-U (Replaces 920108-U)

Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2689
Madison, WI 53701-2689

Wisconsin
Material Approval

Material	UST 2000/P and New! 2000P Volumetric and 2000/U Nonvolumetric Tank Tightness Testing Systems
Manufacturer	U. S. Test, Inc. 406 E. Madison St. Suite 2004 Broussard, LA 70518

SCOPE OF EVALUATION

The U.S. Test UST 2000/P volumetric tank tightness tester and the 2000/U nonvolumetric tank tightness tester have been evaluated in conformance with **s.ILHR 10.61(3)**, of the Wisconsin Administrative Flammable and Combustible Liquids Code.

DESCRIPTION AND USE

UST 2000/P

The UST 2000/P and New! 2000/P use identical protocols and equipment. The software of the new system has been rewritten to produce different graphical outputs and to input tank data automatically, rather than relying on the technician. The UST 2000/P leak detection system uses an ultrasonic sensor which measures changes in the speed of sound between calibration rods and the sensor. This system may be used for tanks containing gasoline, diesel, aviation fuel,

solvents, water, kerosene and some other liquids to be determined in consultation with U.S. Test. This method is not appropriate for #4 or #6 fuel oil or waste oil.

A threshold value of 0.05 gallon per hour is used to declare the presence of a leak.

If groundwater is found to be above the bottom of the tank, the test operator has three options: Defer the test until the water level drops, compensate statistically for the leak rate, or pressurize the tank with nitrogen to offset the hydrostatic pressure.

Tank deformation is assumed to stabilize during the stabilization period. Temperature differences can be determined by data trends which show deviations from or approaches to steady state.

UST 2000/U

The UST 2000/U system is designed to detect leaks in the ullage space of an underground storage tank. Functionally, it is a digital recorder attached to a microphone. The equipment consists of a microphone, an amplifier, an analog-to-digital converter and a 286-compatible computer. Peripheral equipment may include a nitrogen supply, a vacuum pump, hoses, pressure gauges, relief valves, vent plugs, etc.

Background measurements are made at ambient tank pressure for the reference point, then compared to measurements made with the ullage space pressurized to +2 psig or -1 psig. A leak in the ullage space produces a hiss which is identifiable in a particular frequency range.

TESTS AND RESULTS

Ken Wilcox Associates has certified the three versions of the UST 2000 series as meeting the U.S. EPA performance standards for leak detection. The UST 2000/P system met the volumetric tank tightness testing protocol using a threshold of 0.05 gallon per hour. It showed a probability of detecting a 0.10 gallon per hour leak of 99 percent. The corresponding probability of false alarm was less than 1 percent.

The UST 2000/U system with +2 psig on the ullage met the nonvolumetric tank tightness testing protocol with a probability of detecting a 0.10 gallon per hour leak of close to 100 percent.

The UST 2000/U system with -1 psig on the ullage met the nonvolumetric tank tightness testing protocol with a probability of detecting a 0.10 gallon per hour leak of close to 100 percent.

LIMITATIONS OF APPROVAL

All Testing

The procedures specified by U.S. Test shall be used to conduct all tests.

UST 2000/U

The ullage volume tested shall be no larger than 10,000 gallons when the tank is pressurized to 2 psig positive pressure.

The ullage volume tested shall be no larger than 7,000 gallons when the tank is pressurized to 1 psig negative pressure.

Total data collection time shall be at least 15 minutes.

UST 2000/P

The tank shall be filled to 95 percent of capacity if using the 2000/P alone.

When used in conjunction with ullage testing, the tank shall contain at least 24 inches of product which is the minimum needed to cover the first temperature sensor.

The capacity of the tank shall be no larger than 45,000 gallons.

The waiting time after adding a substantial amount of product will vary depending on tank size but shall be no less than 8 hours for tanks up to 10,000 gallons, 24 hours for a 20,000-gallon tank and 48 hours for a 30,000-gallon tank.

The temperature between added product and product already in the tank shall not vary by more than 6.5°F.

The average temperature of the product in the tank shall not vary by more than 0.1°F. for the duration of the test.

The total data collection time will vary depending on tank size, geometry and the amount of product contained. In no case shall the data collection time be less than 1 hour. For a 30,000-gallon cylindrical tank, the data collection time shall be at least 6 hours.

This approval is valid through December 31, 2003, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plants that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Reviewed by: _____

Approval Date: _____ By: _____

Duane D. Hubeler, P.E.
Mechanical Code Consultant
Program Development Bureau

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